| UTAH DEPARTMENT OF HUMAN SERVICES POLICY AND PROCEDURES | | |
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| **Reference:  06-06** | **Effective Date:  May 20, 2004** **Revision Date:** | **Page 1 of 5** |
| SUBJECT:  END-USER SYSTEM DEVELOPMENT | | |
| **RATIONALE:  The purposes of this policy are:  1) to identify the types of systems most conducive to end-user development; 2) to educate potential developers and client management as to their responsibilities when an application is developed outside of the Office of Technology; and 3) to establish the procedure divisions and offices are required to follow when they undertake an end-user development effort.** | | |

## I.      DEFINITIONS

(a) **End-user development (EUD)**:  Computer application systems developed and maintained entirely within a division or office by business personnel, with only minor consulting assistance from the Office of Technology (OT).  The applications are created using a limited set of development tools.

(b) **End-user reporting (EUR)**:  The creation, generation and maintenance of reports from data originating in a production system, by business personnel.  EUR is a subset of end-user development for purposes of this policy.

(c) **Business critical application**: Any software application that plays a critical role in the client's business function.  A division or office cannot function adequately when a business critical application is down: 1) because key business processes are completed using the system; 2) because it contains key business information that either does not exist anywhere else, or that cannot be readily accessed through another source.

## II.     BACKGROUND

Sophisticated development tools, created for the non-information technology professional, have made end-user development of systems much easier.  End-user developed systems, however, have not been characterized by the developmental rigor of those developed by technology professionals.  Change control, security, backup and recovery, database design and other key features of a system and the systems development life cycle are frequently not considered as end-user systems are developed.

This lack of developmental rigor is typically not a problem as long as EUD systems are developed in appropriate situations.  Because of these inherent developmental weaknesses, certain system characteristics are identified in this policy to determine whether a potential application development project is a good candidate for end-user development.

Division and office managers are responsible to ensure adherence to DHS system development standards and procedures when end-user developed systems are created and/or exist within their organizations.

## III.    END-USER SYSTEM DEVELOPMENT APPROVAL REQUIREMENTS

End-user system development is appropriate if <u>ALL</u> of these statements are true:

(a) The application will not be a Business Critical Application as defined in (I.(c)).

(b) The application will be built using approved end-user software development tools. A listing of tools approved for end-user development may be found on OT's web site at http://www.dhs.innerweb.utah.gov/ot/standards/EUD_products.htm. OT approves an EUD tool for inclusion on this list based on its ability to complete basic development tasks, its potential network impacts, its compatibility with other products in use, its ability to pass a security review and when it does not duplicate an existing tool's function. An agency may request an OT review of a product for inclusion on this list if the agency perceives that existing tools are not meeting their business needs.

(c) The application will NOT be purchased software. (Note: The EUD policy does not apply in cases of purchased software. When software is purchased as part of a development project in which OT Application Development is involved, the project team will evaluate the software for appropriateness according to the DHS Hardware and Software Standards and Support policy. When an agency intends to purchase software without OT Application Development involvement, the agency must work with OT Product Support as outlined in the DHS Hardware and Software Standards and Support policy, to ensure that it is supportable and secure according to the provisions of that policy. OT does recommend that agencies **always** include OT Application Development in the technical review when a software package is evaluated for purchase).

(d) The application will NOT degrade performance of the State of Utah's network. (This will be determined through an analysis of the prospective application, conducted by OT in conjunction with the prospective client development organization).

Any end-user development effort that begins because these requirements have been met, and subsequently because of scope changes becomes an application outside of these boundaries, must be reviewed and approved as described in (IV.), regardless of the stage of development the project is in.

## IV. PROCESS FOR POLICY VARIANCE APPROVAL

In situations where an office or division director feels that a variance from this policy is necessary and justified, the following steps must be followed before any development occurs.

(a) The director of the client organization will review this policy with either the OT Application Development Manager or the OT Director. The discussion will focus on the risks associated with EUD development, its limitations, and client responsibilities as listed in (V.) below.

(b) If the client wishes to proceed and OT concurs, a recommendation to the Executive Director's Office will be made to go forward with the end-user development.

(c) If OT views the risks of a proposed end-user development effort as too great, OT will not agree to the request. The client may still make the request to EDO where it will be presented with the OT Director or Application Development Manager, also in attendance to present OT's concerns.

(d) On approval of EDO, the project may proceed. If the request to EDO is rejected, OT will work with the client organization to review and implement other development alternatives.

## V. CLIENT RESPONSIBILITIES IN SYSTEMS DEVELOPMENT WHEN END-USER DEVELOPMENT OCCURS

Traditional OT developments are characterized by well-defined analysis and design, development, testing, and implementation phases. Change control, backup and recovery, documentation, and other standards are rigorously applied to insure that production systems are protected and properly managed.

End-user developed systems MAY NOT require the total rigor of a traditional development effort. When an end-user development project is undertaken, it is the responsibility of the division or office to ensure that the following development requirements are completed by the developer of the system.

(a) Only standard EUD tools may be used to produce the system. A listing of accepted end-user development tools may be found at
http://www.dhs.innerweb.utah.gov/ot/standards/EUD_products.htm.

(b) The developer should consult with OT to determine the appropriate data sources for their system if some or all of the data comes from outside the end-user system (typically through the data warehouse or via an extract of production data).

(c) The developer must understand the currency of external data (i.e. how up-to-date it is), and the data relationships, so that differences between the EUD system and the originating system are explainable by the developer.

(d) "Audit-able" secure system processes must be built into the system. If the system supports critical business processes and/or produces reports or data that affects DHS legally, proper audit and security safeguards must be built into the system.

(e) The developer is responsible for determining appropriate source code management techniques, such as where to store the code, how to secure it from loss, inadvertent damage, etc. The developer will also determine what change control is needed to ensure that only approved changes to the source code are made by authorized persons.

(f) The developer is responsible for determining and implementing appropriate backup / recovery processes for both source code and data to protect against loss.

(g) Testing techniques to insure that changes to programs and data do not result in erroneous data and / or reporting must be included in the development effort. Validating the accuracy of reporting content is required.

(h) The developer is responsible for testing and all other verification processes which ensure the end-user system to be compatible with both current and future releases of all hardware and software systems with which it interacts.

(i) The developer must ensure that system retention and archival of data and reports are adequate to meet any department, division or office requirements, as well as regulatory requirements.

(j) The developer ensures the security and privacy of data as it pertains to report creation and distribution. This includes HIPAA where appropriate.

(k) The developer is also responsible for establishing and managing program execution schedules.

(l) The developer must adhere to OT development standards and procedures as found in the DHS Project Life Cycle manual. A copy may be found at: Uthhsadmin'\USERS\All\OT-Manage\Project Life Cycle

## VI. OT RESPONSIBILITIES IN THE SYSTEMS DEVELOPMENT PROCESS WHEN A SYSTEM IS DEVELOPED BY THE CLIENT.

OT employees will serve as consultants to divisions and offices on end-user development efforts when requested. Standard Internal Service Fund billing rates will apply. In addition, OT will support end-user development efforts by:

(a) Implementing and supporting appropriate end-user access to data sources (Data Warehouses and Data Extracts).

(b) Providing help in locating third-party consultants for clients. (Note: Consultants contracted with for EUD efforts are constrained by the same rules in (III) as their clients are).

(c) Establishing software tool selection, version standards, and exception processes to ensure that adequate end-user development tools are included in DHS' list of standard products. (Note: Divisions and offices that undertake end-user development efforts are responsible for purchasing licenses for any products they use).

(d) Distributing communications concerning changes to data and changes to software tools.

Divisions and offices occasionally desire to turn over to OT applications developed in the EUD environment. This typically occurs when a division or office can no longer support the system. Such situations may occur when the client developer leaves and the development skill set no longer resides in the client area, when the system becomes too complex, or when errors that the client can no longer solve occur.

OT may accept these EUD systems when they were developed within the guidelines of (III.), or when they were developed with an approved variance (IV.) All appropriate development standards must have been followed (V.). OT will only accept such systems for support when the developing organization provides maintenance funding adequate to cover the estimated annual maintenance support hours. OT WILL NOT accept such systems for support without rewriting them at the clients' expense in cases where this end-user development policy was not followed.


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_____DATE__05-20-04___
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